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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/724,615	11/28/2000	Mark A. Strobel	55270USA8A.002	8433

7590 08/26/2002

Attention: Roger R. Tamte
Office of Intellectual Property Counsel
3M Innovative Properties Company
P.O. Box 33427
St. Paul, MN 55133-3427

EXAMINER

JACKSON, MONIQUE R

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 08/26/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-6

Office Action Summary

Applicati n No.

09/724,615

Applicant(s)

STROBEL ET AL.

Examiner

Monique R Jackson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The amendment filed 6/3/02 has been entered. Claims 1-12 are pending in the application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 1 and 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Asakura et al (USPN 4,645,702) for the reasons recited in the prior office action and restated below.

Asakura et al teach a magnetic recording medium comprising a polymer film (*substrate*) and a metal or metal compound layer vacuum deposited on the polymer film (*metal coating*) wherein in order to improve the adhesion of the polymer film, the film may be subjected to a physical or chemical surface treatment such as a flame treatment conducted in various atmospheres wherein the gas to be utilized include those listed at Col. 9, lines 48-60, which include oxygen, nitrogen, nitrogen monoxide, nitrogen dioxide, sulfur dioxide and hydrogen sulfide with mixtures of two or more of the listed gases often especially effective (Abstract; Col. 9, lines 48-60.)

Claim Rejections - 35 USC § 103

4. Claims 2-3 and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asakura et al in view of the admitted prior art for the reasons recited in the prior office action and restated below.

The teachings of Asakura et al are discussed above. Asakura et al do not teach whether the flame treatment process is conducted in a fuel-rich environment or a fuel-lean environment,

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however, it is well known in the art that flame treatment can be conducted at ratios above, equal to, or below the stoichiometric ratio of oxidizer to fuel, wherein in a fuel-rich system the equivalence ratio (stoichiometric ratio/actual ratio) is greater than one, and in a fuel-lean system the equivalence ratio is less than one, as taught by the admitted prior art (Page 1, line 19 – Page 2, line 6.) Given that the ratio of oxidizer to fuel is a known result-effective variable affecting the functional groups produced on the surface of the polymer film, it would have been obvious to one having ordinary skill in the art at the time of the invention to utilize routine experimentation to determine the optimum ratio of oxidizer to fuel to utilize in the invention taught by Asakura et al to provide the desired functional groups on the surface of the polymer film for the desired adhesion-promoting effect wherein the materials disclosed by Asakura et al, such as hydrogen sulfide and nitrogen, would produce the functional groups instantly claimed based on the ratio utilized for a particular end use.

5. Claims 1-12 are rejected under rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Asakura et al for the reasons recited in the prior office action and restated below.

The admitted prior art teaches a method of modifying a polymeric substrate by exposing the polymeric substrate to a flame where the flame is supported by an oxidizer and fuel mixture that may be fuel-rich or fuel-lean to improve the wettability (hydrophilicity) of the polymeric surface and in turn, the adhesion of a metal coating to the polymeric substrate, with fuels for the flame process including mixtures of carbon dioxide, carbon monoxide, hydrogen, methane, and nitrogen (Page 1, line 9-Page 2, line 12.) The admitted prior art does not teach the use of sulfur-containing compounds for the flame treatment process, however, Asakura et al teach that sulfur

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dioxide and hydrogen sulfide (as instant claimed) are effective equivalent gases to carbon dioxide, carbon monoxide, hydrogen, and nitrogen, with mixtures of two or more often especially effective, in improving the adhesion and bondability of polymer films (Col. 9, lines 48-60.) Hence, it would have been obvious to one having ordinary skill in the art at the time of the invention to utilize hydrogen sulfide, a known functional equivalent as taught by Asakura et al and would produce the functional groups as instantly claimed, in the flame treatment process taught by the admitted prior art wherein it would have been obvious to one having ordinary skill in the art to utilize routine experimentation to determine the optimum ratio of the oxidizer and fuel mixture to provide the desired functional groups or adhesion promoting affect for a particular end use.

Response to Arguments

6. Applicant's arguments filed 6/3/02 have been fully considered but they are not persuasive. The Applicant argues that the teaching of hydrogen sulfide in Asakura et al with regards to flame treatment refers to the "atmosphere" and not the fuel mixture, however, the Examiner respectfully disagrees given that Asakura et al does not state that "[a]mong the gases used in the atmosphere is hydrogen sulfide" as argued by the Applicant. Asakura et al clearly state that, "In order to improve the adhesion and bondability to other materials, the film of the present invention may be subjected to a physical or chemical surface treatment. As the chemical treatment, corona discharge treatment, a low temperature plasma treatment and a flame treatment, which are conducted in various atmospheres, are valuable. As the gas to be used for these treatments, various gases such as oxygen, nitrogen, argon, hydrogen, neon, ammonia, steam, helium, carbon dioxide, nitrogen dioxide, nitrogen monoxide, ozone, sulfur dioxide and

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hydrogen sulfide are effective. Mixtures of two or more of these gases are often especially effective.” Nowhere in this recitation does Asakura et al limit the use of these gases to the atmosphere in which flame treatment is conducted. The recitation of Asakura et al clearly teaches flame treatment utilizing oxygen, nitrogen, hydrogen, carbon dioxide, carbon monoxide and hydrogen sulfide or mixtures thereof, wherein hydrogen sulfide is inherently combustible and hence when utilized in a flame treatment process, would function as a fuel. Therefore, given the small groups of treatment processes and gases to be utilized as taught by Asakura et al, one having ordinary skill in the art would have clearly envisaged flame treatment utilizing oxygen, nitrogen, hydrogen, carbon dioxide, carbon monoxide and hydrogen sulfide or mixtures thereof and hence the invention taught by Asakura et al reads on the instant invention. Further, with regards to the obviousness rejections, the Applicant argues that the benefits and results recited in claims 2-3 and 7-12 are unique and unexpected, however, it is first noted that the data presented in the original disclosure at pages 12-16 is not commensurate in scope with the claimed invention, particularly with regards to the equivalence ratio – fuel rich/fuel lean limitation. Further, it is noted that none of the comparative examples utilize hydrogen sulfide and hence the data has not provided a showing of unexpected results with regards to the closest prior art. Therefore, in the absence of a clear showing of unexpected results with regards to the closest prior art, the Examiner maintains her position that the invention would have been obvious in view of Asakura et al and the admitted prior art.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

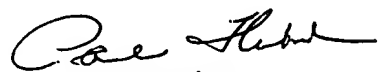
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R Jackson whose telephone number is 703-308-0428. The examiner can normally be reached on Mondays-Thursdays, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



mrj
August 21, 2002



Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700